of a problem often being difficult and frequently accompanied by a confusing variety of possible solutions. Pasture Doctor, written specifically for farmers and land managers of perennial pastureland in south-eastern Australia, is an excellent, straightforward guide that enables reliable first-level diagnoses to be made. In just 62 pages there is a wealth of practical information on the major problems that occur in improved or disturbed pastures, with recommendations for their improvement or control. The book is divided into three sections that take the reader easily from an overall assessment of the pasture, focusing upon general disorders, through an adequately detailed description of weeds and their control, to conclude with a concise but accurate account of individual plant symptoms of insect damage, disease and mineral deficiency. Over 130 excellent photographs illustrate the specific disorders. A minor criticism is that the lack of annotation on the general photographs in the introductory sections introduces a small mystery into an otherwise clear text.

Jo Millar's expertise as a Pastures Extension Officer is effectively communicated and the book will give valuable assistance in determining appropriate management strategies. However, given that the book is a practical guide to farmers, I was disappointed that it is not a convenient size to carry and use in the field nor does it appear to be very robust—my copy disintegrated with no encouragement whatsoever.

H. G. Hewitt

National Rivers Authority Water Quality Series No. 26: Pesticides in the aquatic environment, ed. National Centre for Toxic and Persistent Substances (TAPS), HMSO, London, 1995, x + 92 pp., price (UK) £25.00
ISBN 0 113101 01 5

Few issues related to pesticide use have created as much public concern in recent years as that of pesticide residues in the sources of our drinking water, yet there has been little quantitative information about the scale of the problem in the UK. This publication by the former National Rivers Authority (now part of the Environment Agency) is the first comprehensive report on the occurrence of pesticide residues in surface and ground waters in England and Wales. Drawing on analytical data from an extensive regional monitoring exercise carried out in 1992–1993 at 3,500 sites, it provides detailed information about the incidence of pesticides in natural waters above Environmental Quality Standards or exceeding the 0.1 μg litre^{-1} standard set by the EC Drinking Water Directive. Application of the latter limit is relevant in the UK both because the NRA is required to take action to safeguard water resources when notified by water companies of a breach of the limit and because a large proportion of groundwater sources used as supplies for drinking water currently have no treatment facilities to remove pesticides.

The report confirms the main sources of pesticide contamination as industrial discharge (particularly from wool processing), careless disposal of sheep dip, run-off from amenity applications and from agricultural land, and seepage to ground water following agricultural use. Standards from the statutory EC 'Dangerous Substances' priority pesticides were exceeded at less than 1% of sites, the most frequent culprit being total hexachlorocyclohexanes, and the most common breaches of non-statutory Environmental Quality Standards (proposed for the most part by the NRA) resulted from discharge of trade effluents containing the sheep dip insecticide diazinon following wool processing.

Maps and tables are used to identify sites exceeding limits for monitored pesticides on a regional basis and a useful summary of current legislation relating to pesticides in the aquatic environment is given. This report will provide an authoritative source of information for many parties with interests in water quality, pesticide regulation and environmental fate. It is to be hoped that it will be the first in a continuing series that place such data in the context of continuing efforts to improve the quality of our natural waters by controlling effluents and modifying pesticide use patterns. The report makes 20 recommendations designed to reduce pesticide pollution and promote further research in this area.

G. le Patourel

Insects: chemical, physiological and environmental aspects 1994, ed. D. Konopinska, G. Goldsworthy, R. J. Nachman, J. Nawrot, I. Orchard, G. Rosinski & W. Sobotka, Wydawnictwo Uniwersytetu Wroclawskiego, Wroclaw, Poland, 1995, 350 pp., price US$60.00.
ISBN 83 229 1303 6

This book is the proceedings of the 1st International Conference with this title, held 26–29 September, 1994 at Ladek-Zdroj, Poland.

Following the collection of 12 plenary lectures, the text is divided into four additional sections on (1) Aspects of insect physiology, (2) Insect peptides, (3) Juvenoids and allato-regulating hormones and (4) Practical aspects. The techniques of molecular biology, combined with modern methods for peptide sequencing and synthesis, have had a profound effect on progress in insect biochemistry. This is evident in the plenary lectures, which provide a snapshot of current research on the energy-mobilising adipokinetic hormones, peptides and biogenic amines controlling visceral muscle and prothoracicotropic hormones regulating moulting in lepidoptera. The biosynthesis of insect sex pheromones continues to attract much attention and specific examples are detailed, along with useful reviews on the pro-

teins involved in juvenile hormone physiology. This section concludes with short reviews on the chemistry and biochemistry of the insect exoskeleton and non-host interactions in chemical ecology.

The papers in Section 1 illustrate some current research on biogenic amines and their receptors, insect egg yoke proteins, peptides stimulating ovarian development, peptides controlling the processes of mating, fertilisation, diapause and diuresis. This theme is continued in Section 2, with more specific attention to insect neuropeptides. Of particular interest here are papers on the modification of known peptide hormones in the direction of greater lipophilicity, for improved entry through the cuticle, and stability towards degrading enzymes. Methods include the substitution of D- for L-amino acids, amino-acid exchange and isosteric bond replacement. This approach has met with mixed success in regard to producing hormones with greater biological activity but is doubtless still in its infancy. Interest in the complexities of the insect moulting process continues but, surprisingly, Section 3 on juvenile hormone analogues and related matters is rather short, comprising one paper each on juvenile hormone analogues and anti-juvenile hormones (precocenes), one on the biochemical origins of the juvenile hormone structural 'mix' found in lepidoptera and two on peptide hormones regulating activity of the juvenile-hormone-producing glands (corpora allata). Current interest in the synthesis of analogues of these small peptides is reflected in only one paper in this section.

The final section begins with papers on the synthesis of new, putative insect growth regulators (IGRs) and on the effects of benzoylphenylureas on in-vitro systems, then moves into molecular targets for feeding inhibitors and the effects of various compounds, including powdered neem, on stored products pests. The combined use of sex pheromone traps with *Bacillus thuringiensis* for control of *Spodoptera littoralis* is reported on by Egyptian scientists. This section concludes with reports on Colorado beetle occurrence and control in Poland and on the efficacy of IGRs of the benzoylphenylurea and juvenoid types for control of white peach scale in Hungary.

As is usual with conference proceedings, the contributions vary in length and substance but the material is generally well presented and the book is a recommended update for researchers interested in this area. The second conference in this series is scheduled in Ladek-Zdroj in September 1997.

G. T. Brooks